WHAT IS CLAIMED IS:

1. A method for automatically adjusting the relationship between image resolution (Res) and real time frame rate (Speed) of an ultrasound system comprising:

acquiring a plurality of ultrasound images over time;

sensing the relative motion between temporally different ultrasound images; and

increasing the image resolution and decreasing the frame rate in response to relatively less sensed motion or decreasing the image resolution and increasing the frame rate in response to relatively greater sensed motion.

2. The method of Claim 1, wherein sensing comprises calculating the correlation of the pixel content of temporally different ultrasound images,

wherein a relatively high correlation corresponds to relatively less motion and a relatively low correlation corresponds to relatively greater motion.

3. The method of Claim 1, wherein sensing comprises sensing relative motion with a probe motion sensing device.

4. The method of Claim 1, wherein sensing comprises sensing relative motion by analyzing the image content of successive ultrasound images.

5. The method of Claim 1, wherein the ultrasound system includes a Res/Speed display of the relationship between image resolution and frame rate; and further comprising automatically adjusting Res/Speed display in correspondence with a change made to the image resolution and/or frame rate.

6. The method of Claim 5, wherein the Res/Speed display includes a user adjustable setting which enables a user to manually balance the relationship between image resolution and frame rate of the ultrasound system.

7. The method of Claim 6, wherein manual adjustment of the Res/Speed display adjusts the manner in which subsequent automatic adjustments to the balance between image resolution and frame rate will be

made.

8. The method of Claim 1, wherein the frame rate is changed by changing at least one of the transmit beam density, multiline order, number of focal zones, or number of transmit pulses.

9. The method of Claim 8, wherein the image resolution is changed by changing the spatial sampling of the image field.

10. A method for automatically adjusting the relationship between image resolution (Res) and the depth of penetration (Pen) of an ultrasound system comprising:

acquiring a plurality of ultrasound images over time;

calculating the electronic noise between temporally different ultrasound images; and

increasing the image resolution in response to relatively less electronic noise or increasing the penetration in response to relatively greater electronic noise.

11. The method of Claim 10, wherein calculating the electronic noise comprises calculating the decorrelation of electronic noise between regions of successively acquired images.

12. The method of Claim 11, wherein calculating the electronic noise further comprises comparing the correlation of far field signals with the correlation of signals elsewhere in the images.

13. The method of Claim 12, wherein when the comparison shows a relatively low correlation in the far field and a relatively high correlation elsewhere, the operating frequency of the ultrasound system is automatically decreased, and when the comparison shows a relatively high correlation in the far field and elsewhere, the operating frequency of the ultrasound system is automatically increased.

14. The method of Claim 10, wherein increasing the image

resolution comprises increasing at least one of the transmit or receive frequency of the ultrasound system, and wherein increasing the penetration comprises decreasing at least one of the transmit or receive frequency of the ultrasound system.

15. The method of Claim 10, further comprising aligning the temporally different ultrasound images prior to calculating the electronic noise.

16. The method of Claim 10, wherein the ultrasound system includes a Pen/Gen/Res display of the relationship between image resolution and depth of penetration; and further comprising automatically adjusting Pen/Gen/Res display in correspondence with a change made to the balance between resolution and penetration.

17. The method of Claim 16, wherein increasing the image resolution comprises increasing an operating frequency of the ultrasound system; wherein increasing the penetration comprises decreasing an operating frequency of the ultrasound system; and wherein automatically adjusting the Pen/Gen/Res display comprises adjusting the display toward Pen when the operating frequency is decreased and adjusting the display toward Res when the operating frequency is increased.

18. The method of Claim 17, wherein automatically adjusting the Pen/Gen/Res display comprises adjusting the display toward Pen when fundamental frequency operation is performed and adjusting the display toward Res when harmonic operation is performed.

19. The method of Claim 17, wherein the operating frequency comprises at least one of the transmit frequency or the receive frequency.

20. The method of Claim 16, further comprising manually adjusting the Pen/Gen/Res display to adjust the manner in which automatic adjustments to the balance between resolution and penetration will be made.

21. An ultrasonic diagnostic imaging system comprising:

a probe including an array transducer;

a transmitter coupled to apply drive signals to the array transducer;

a receiver coupled to process signals received by the array transducer;

a display coupled to the receiver which displays received ultrasound images;

a sensor coupled to the probe which senses relative motion in the image field;

a Res/Speed display responsive to the sensor which is shown on the display to depict the relative balance between image resolution and frame rate,

wherein the transmitter is responsive to the sensor for adjusting the frame rate of the ultrasound images.

22. An ultrasonic diagnostic imaging system comprising:

a probe including an array transducer;

a transmitter coupled to apply drive signals to the array transducer;

a receiver coupled to process signals received by the array transducer;

a display coupled to the receiver which displays received ultrasound images;

a sensor coupled to the probe which senses electronic noise in the image field;

a Pen/Gen/Res display responsive to the sensor which is shown on the display to depict the relative balance between image resolution and penetration,

wherein the transmitter is responsive to the sensor for adjusting the penetration of transmitted drive signals.